

amount, over \$72,000 has been recovered from those parties which caused the accidents. During the same period, savings to the public resulting from reduced delays totalled over half a million dollars. The resultant benefit/cost ratio was about twelve to one.

The same kind of incident management can be effectively used at "planned" incidents -- major events attracting large crowds, recurring spot congestion locations, construction/maintenance activities. Use of many of the same techniques and procedures (teams, alternate route plans, diversion, etc.) can produce significant reduction in delays which result from these events.

Incidents on the freeway system cannot be eliminated -- neither can the delays associated with those incidents. Delays and secondary accidents due to congestion can be markedly reduced, however, using well thought-out, proven incident management techniques. That is exactly what is happening in Los Angeles -- and it is paying off.

## TRAFFIC MANAGEMENT TEAMS

This presentation, the text of a booklet by D. Ray Derr, "Traffic Management Teams in Texas", is available from: State Department of Highways and Public Transportation, Safety and Maintenance Operations Division, 11th and Brazos, Austin, Texas 78701

### Introduction

The first Traffic Management Team in Texas was officially formed in 1975. By 1980, there were five teams and there are currently twelve operating in the state. These teams cover the seven largest metropolitan areas and the nine largest cities as well as other smaller areas. The rapid spread of the team concept and the wide acceptance among the large cities in Texas lead us to believe that it is a very beneficial organization.

The team brings together professionals from the various traffic-related agencies in the area and helps them to work together to solve the area's traffic problems. Essential to the team's successful operation is the communication, coordination and cooperation which can be realized through working side by side on the team.

### What Does a Traffic Management Team Do?

A Traffic Management Team improves the overall traffic operation and safety in an urban area's corridors by coordinating the activities of the principal operational agencies in the area (Figure 1).

### What Is A Corridor?

A corridor is a system of roadways which interact and serve as alternate routes to each other. Corridors can consist of two or more parallel streets or a freeway with parallel streets. All cities have several different corridors serving different origins and destinations which intertwine and change in size depending on the time of day and day of the week. Any change made to the capacity of one element of the corridor affects the others by

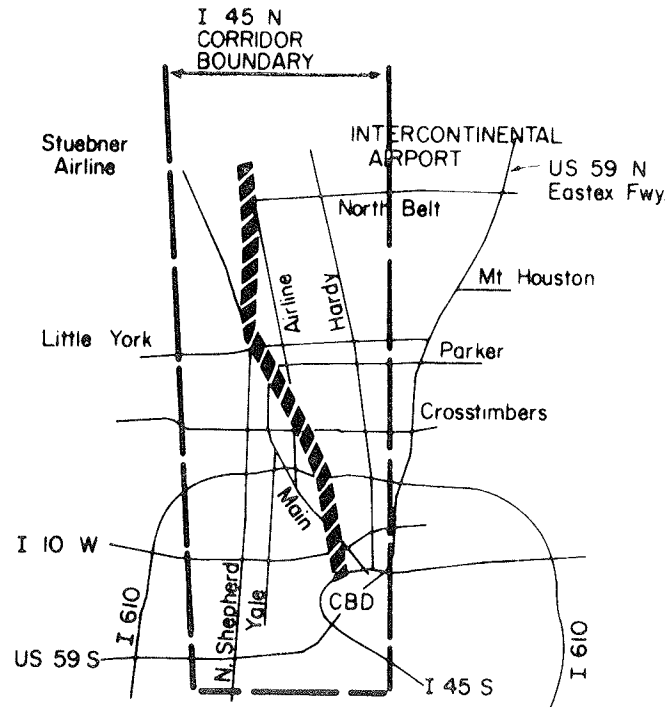


Figure 1. Houston I-45 N. Corridor.

shifting the demand from one roadway to another; therefore, alterations must be coordinated between the various elements for the traffic to move in an efficient manner. The different elements of the corridor, though, are quite often controlled by different agencies and communication and coordination between them is sometimes weak.

#### How Can The Operation of the Corridor Be Improved?

There are basically three ways to improve the operation of a corridor. The first is to make the corridor safer. Much of the work done by the teams in Texas is directly related to safety and it is always a consideration in any other action. Some common safety improvements are adjusting the clearance intervals at signals, restriping faded lane lines, increasing enforcement of speed limits and improving confusing signing.

The corridor's operation can also be improved by increasing its passenger capacity. This includes adding lanes, providing good signal progression, eliminating geometric bottlenecks and providing mass transit facilities. Without good coordination, each agency will build those improvements specific to their needs, but may find that the new facility does not work as well as it could. For example, the state highway department and the local transit authority must work together closely in designing a separate priority entry ramp onto a freeway for high-occupancy vehicles. Other agencies can also, however, contribute to the design. The police department can suggest

ways to make the ramp restrictions easier to enforce and less likely to be violated. The city traffic department can alter the geometry or signal operation of nearby intersections to make the ramp easier to access.

Recently, a very busy urban arterial highway in Houston, Texas with an average daily traffic of 80,000 vehicles, was converted from three 12-foot lanes to four 9-foot lanes in each direction. This was a temporary modification until the right-of-way could be obtained for additional lanes. In this case, the capacity of the corridor was increased at the risk of decreasing safety. The team was, of course, very concerned about the safety and discussed the project thoroughly while it was still in the early design stage. Because of this, all of the agencies involved knew exactly what was planned and a positive, cohesive front was presented to the media and the public. To date, there has not been a significant increase in accidents and the public has accepted the narrow lanes very well.

The third basic way to improve the operation of a corridor is to decrease the vehicular demand. This is more difficult to do since it requires convincing the driver to change his/her normal route. Some suggestions are to encourage use of mass transit, less traveled alternate routes and variable work hours. A temporary decrease can be obtained by the use of media releases explaining the need for diversion. Installing entrance ramp meter control may cause a more permanent shift in driver behavior.

#### What Different Agencies Should Be Represented?

Different cities have different situations, so it is difficult to say which agencies should be represented, but some agencies are almost always included on the team. These include the city and state traffic engineering offices, city and state law enforcement agencies, and the local transit

Table 1. Agencies Represented on Teams in Texas.

<u>Agency</u>	<u>Beaumont</u>	<u>Corpus Christi</u>	<u>Fort Worth</u>	<u>San Antonio</u>	<u>Houston</u>
City					
Traffic	X	X	X	X	X
Police	X	X	X	X	X
Fire	X				X
Transit				X	X
State					
Traffic	X	X	X	X	X
Design			X		X
Maintenance		X	X		
Highway Patrol	X	X			X
County					
Engineer		X		X	X
Sheriff				X	X
Other					
Naval Air Station		X			
Traffic Safety Assoc.					X
Railroad Assoc.					X

authority. Other agencies and divisions should be included if they are significantly involved in the operation of the corridor. Possibilities include maintenance, design and public works sections; the fire department; railroads and the port authority. It is important, however, to keep the team as small as possible to minimize red tape. Table 1 shows the agencies represented on teams in five various-sized cities in Texas.

When discussing a topic which affects an agency not represented on the team, that agency should be invited to attend that meeting. For instance, several teams have met with local ambulance services to discuss ways of clearing accidents off of a freeway with as little disturbance to traffic as possible. While most teams invite a representative from a satellite city to attend a meeting at which a subject affecting his/her city will be discussed, one team includes representatives from two satellite cities as permanent members of the team.

### What Actions Need To Be Coordinated?

Virtually all work done in the corridor can be coordinated between the agencies of the team to the benefit of traffic operations and safety. Listed below are a few common examples.

#### 1. Work Zone Traffic

Operations--Severe congestion often accompanies maintenance operations and new construction causing traffic to divert to alternate routes. If maintenance is also being performed on that alternate route, the entire corridor can break down. Therefore, traffic control which affects the capacity of a route should be brought to the attention of the team to prevent any conflicts. In severe cases, such as where an entire freeway is closed, the entire team should be involved in planning and implementing the closure. The police department can direct traffic and enforce special signing while the city traffic office adjusts the coordination of the signals on the alternate route to provide an efficient operation. The highway department and city can provide signs warning of the closure and identifying the alternate route while the transit authority modifies its routes, if possible. The team as a whole can prepare media releases to warn drivers of the closure and recommend an alternate route. By coordinating the plan within the team, most problems can be worked out beforehand and the traffic control can be jointly carried out to provide a safe and efficient operation.

#### 2. Route Improvements

Permanent modifications to any roadway in the corridor will affect the other elements, and for maximum efficiency, the corridor should be analyzed to prevent a bottleneck. Controlling entrance ramp volumes through a ramp meter, for example, can improve freeway operation in terms of total volume, but it can also cause congestion on city streets which must be taken into account. The team is well equipped to analyze the effects of new construction and to prepare for the changes in traffic flow.

#### 3. Normal Operations

In their day-to-day work, police officers often notice locations where there is a violation or accident problem. The team provides a ready line of communications to the traffic engineering agencies who can act to correct the problem.

A change in operation can also be important to the team because of the interaction between the elements of the corridor. For example, banning left turns at an intersection during peak hours will force traffic to use another cross street. This information is vital to the transit authority which might need to alter its routes. The traffic might also start using a different on-ramp to the freeway causing a weaving problem or a need to change ramp meter timings.

#### 4. Emergency Planning

In case of severe weather such as flooding or freezing, it is very helpful to have a plan delineating each agency's responsibilities to prevent delay and possible omission of those jobs which must be done to insure the safety of the driving public. The same type planning can also be used for major incidents, such as truck accidents which close an entire freeway. Once again, the advance planning fosters quick response and action.

#### 5. Special Event Traffic Handling

The team can often quickly and efficiently design, analyze and operate a traffic routing plan for a special event such as a parade or fair. The transit authority can provide express bus service to the event while the highway department and city provide signs telling the driver how to get to the bus service and the event. The police department can direct the traffic around the event.

#### What Is A Team Meeting Like?

The team should be a group of transportation professionals with mutual respect and confidence. Below are a few guidelines which might help in setting up and running team meetings. Each team is different though, and this is reflected in the way the team operates.

1. Most teams in Texas hold monthly meetings but some only hold them every other month. It is important to schedule the meeting well beforehand so that all the members will have ample time to arrange their calendars. This can be easily done by setting a standing meeting date, such as the second Tuesday of each month at 2:30 in the afternoon.
2. The same people must attend the meeting each time rather than send an alternate. This helps to create a spirit of cooperation and respect among the team members, and also helps to create a more comfortable situation as time goes by since everyone will know each other, having worked with them before.
3. The meetings should be informal. A chairperson helps in coordinating the discussion but with such a small body, formal rules are not needed and tend to stifle the interaction of the team. Most teams use a short prepared agenda of three or four items submitted by the team members and leave time for impromptu items. One type of problem should not be allowed to dominate the meeting; rather, a mixture of subjects keeps everyone interested and involved.
4. After discussion, the team reaches a verbal consensus on the solution to a problem. The responsible agency or agencies will then take steps to implement the plan. The team members must be able to make

decisions about committing their agency's resources to a team project and also be close enough to the operation to be able to effectively discuss the issues.

#### How Is The Team and Its Projects Funded?

Generally, in Texas, the teams have not had dedicated funding sources. Rather, each agency funds its own improvements with its normal budget.

#### Is This Approach Suitable For My City?

There are currently twelve Traffic Management Teams operating in Texas in areas ranging in population from 15,000 to 3,000,000 with seven of the cities over 300,000 population. We feel that this concept is very advantageous for cities over 300,000 population. Cities smaller than this quite often do not have a traffic engineering staff and this cuts off a valuable contact in the team. Our experience has shown that the team helps considerably in improving relationships between the various agencies and helps to unite the agencies in their common goal of improving traffic conditions.

#### How Much Time Does This Take?

Attending team meetings does take time away from a busy schedule, but most team members feel that this time is more than compensated for by the reduction in time wasted because of misunderstandings, redesigns, and letter writing. The team gets problems out in the open early and everyone benefits from the improved communication, coordination and cooperation.